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### A M E N D M E N T S

Please amend the subject application as set forth below.

#### In the Claims

Cancel claims 48 through 50 inclusive and 55 without prejudice.

Amend claims 51, 52, 56, 58, 60, and 62 through 68 inclusive as set forth below:

N.E. Claims 51, 56, 62, 64, and 67, line 1, for "49" substitute - - 72 - -.

N.E. Claims 52, 58, 63, 65, and 68, line 1, for "50" substitute - - 74 - -.

N.E. Claims 60 and 66, line 1, for "48" substitute - - 72 - -.

Add the following new claims 72 through 74 inclusive.

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--72. (New) A method of determining both genotype and confidence scores at a genetic locus for a plurality of samples of genetic material wherein the plurality of samples have been prepared under comparable conditions, the method comprising:

- C1
- (a) assembling reaction-value data points for the samples, each reaction-value data point corresponding to a respective one of the samples and including at least one reaction value;
  - (b) determining an initial conditional probability for each reaction-value data point for each genotype;
  - (c) computing a conditional probability of each genotype for each reaction-value data point; and
  - (d) determining the genotype and confidence score for each reaction-value data point, thus determining the genotype and confidence score at the genetic locus for each sample.